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ABSTRACT

Among the recommendations of the Texas Council on Vocational Education concerning literacy and training are the following: (1) the governor and legislature should conduct a statewide, multimedia campaign to heighten Texans' awareness of the importance of workplace literacy, dropout prevention, literacy programs, and the human and economic aspects of literacy; (2) continued funding and operation of the Texas Literacy Council; (3) increased funding of adult education and adult vocational education by $7.5 million per year, thereby doubling the state's investment in adult literacy programs; (4) development and implementation of an integrated delivery system to meet needs for vocational education; (5) expansion of the Joint Advisory Committee to include representatives from relevant state departments and from business, industry, and labor; (6) expansion of the Joint Advisory Committee's responsibilities to include development of the Master Plan and an integrated vocational education system; (7) "blanket weight" funding that more nearly reflects the costs of vocational education; (8) full formula funding for postsecondary occupational education and incentive funding for the targeted goals of postsecondary occupational education; (9) simplification of the process for community/junior college annexation; (10) administration of state funds through an appropriate agency to match the level of federal funding provided to the network of small business development centers; and (11) continued state funding for apprenticeship programs administered by the state board of education and the state higher education coordinating board. (The document also contains information on the state's vocational education enrollments and expenditures for 1987-88, the economic impact of vocational education in Texas, and a public policy symposium.) (CML)

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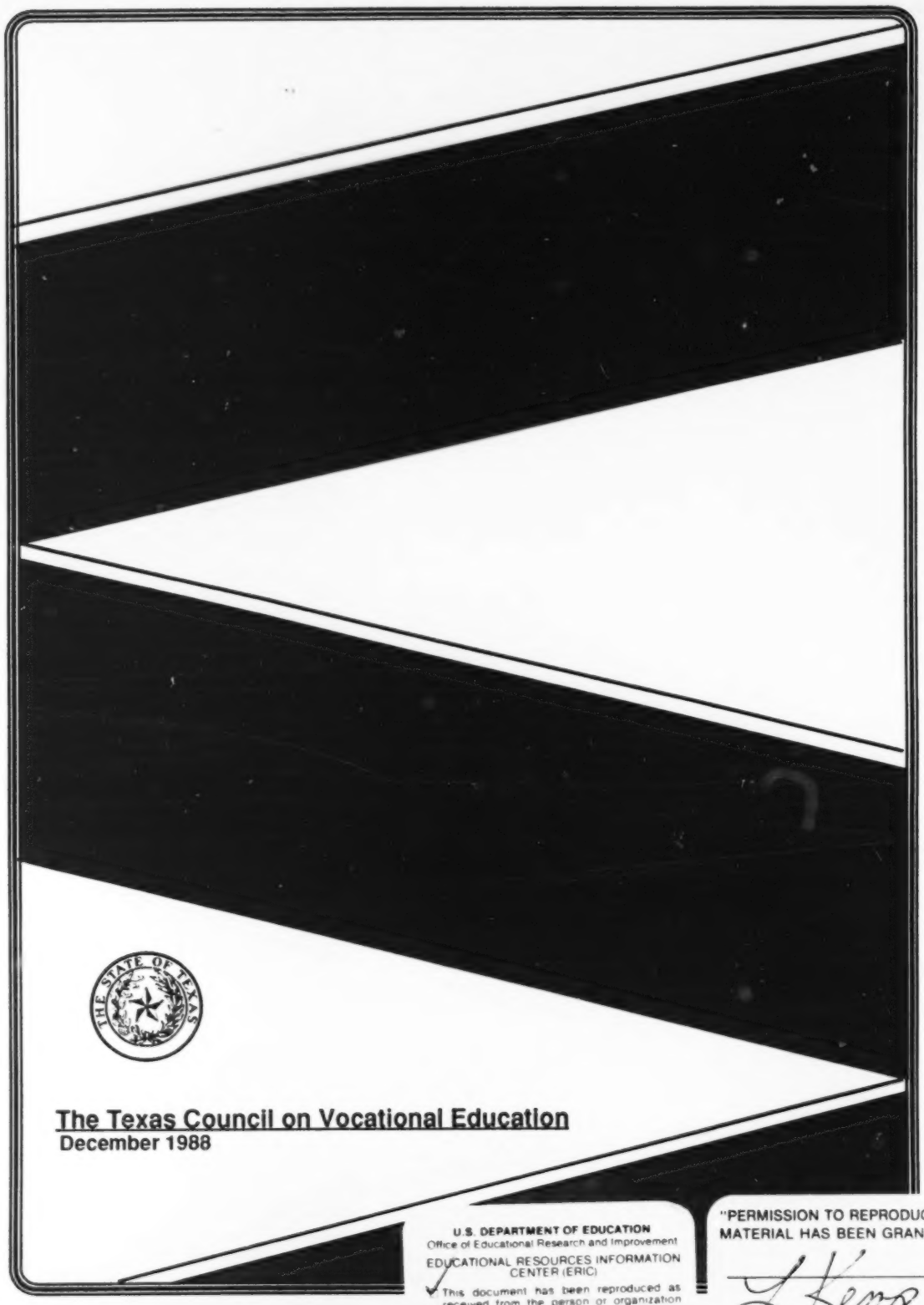

The Texas Council on Vocational Education

December 1988

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Biennial Report of the

Texas Council on Vocational Education*

December 1988

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Literacy and Training Priorities for Texas

Tomorrow's Blueprint. The Texas Strategic Economic Policy Commission,* in *A Blueprint for Tomorrow's Texas*, includes the call for a "skilled, flexible, internationally competitive workforce" among its key objectives to guide Texas' economic future.

Tremendous progress is being made in upgrading the State's education and training programs, per provisions of sweeping education reforms of the 1980s. However, the Commission feels that if Texas is to gain long-term competitive advantage from its large workforce, currently at 7.7 million with a Year 2000 projection of 9.1 million workers, improvements are still needed in the "overall levels of academic performance," the level of "cooperation and coordination among the state's overall training efforts," and the responsiveness of our schools and colleges to "a diverse student population and increasing demands for lifelong learning."

Trends Impacting Planning. Hudson Institute *Workforce 2000 Projections*, Department of Labor *forecasts*, and Data Resource, Inc. *projections* paint a national and Texas economy that can expect by the Year 2000: tremendous growth in technical, information, and service jobs; the majority of new jobs requiring a postsecondary education; fewer overall workers than jobs available; an aging workforce (38.9 years average age); a workforce that is less willing to retrain or relocate; two-thirds of new workers being female; nearly 60 percent of new workers being minority; up to 80 percent of new jobs to be created by small businesses who traditionally have limited resources to provide on-the-job training; and a workforce that must be constantly upgrading its skills to keep pace with relentless advances in technology.

Nearly 60% of new workers will be minority

Strategies to Upgrade Workforce. The Strategic Economic Policy Commission cites three key strategies to achieve a skilled, flexible, and competitive Texas workforce: (1) improve and expand education services that ensure fundamental basic skills - including literacy - for all Texans; (2) develop a responsive, integrated system for technical and vocational training and retraining; and, (3) improve the quality and responsiveness of higher education to meet the needs of a changing Texas economy.

Literacy and Dropouts. Texas ranks 47th among the states in the literacy of its citizens over 20 years of age, with 16 percent of Texans over 20 years of age being functionally illiterate, reports the Commission.

Scores among high school age students who took the Scholastic Aptitude Test for college admittance in 1987 placed Texas near the bottom (46th), with 65 percent of those entering college deficient in math and 33 percent lacking in language arts and reasoning skills.

The Texas school dropout rate hovers at 33 percent overall, with more than 25 percent of Anglo students, over one-third of Blacks, and almost 50 percent of Hispanics dropping out. As reported in the Texas Council on Vocational Education's 1988 paper, *The Dropout Dilemma: Searching for Formulas That Work*, the results of a Texas Department of Community Affairs school dropout survey submitted to the 1987 Legislature revealed "the cost of dropping out to Texas is estimated at $17.12 billion in foregone income, lost tax revenue, unemployment insurance, adult training and education, and the increased cost of crime, welfare, and incarceration."

The Texas Strategic Economic Policy Commission reports that when the current dropout dilemma is added to Texas' current near bottom rankings in literacy and SAT scores among the states, "the impli-

**The Texas Strategic Economic Policy Commission, comprised of 19 members and chaired by the Governor, was created by the 1987 Legislature with a 2-year life span, to develop a long-range strategic plan for diversifying and developing the State's economy for submission to the 1989 Legislature.*

cations for our state's economic vitality are clear - a less educated and trained workforce, and a greater demand for public service."

Education reforms in Texas — increased academic requirements, recapturing the school day for basic skill development, and the periodic testing of basic skills to facilitate remediation — are key initiatives that must continue to receive increased legislative support and financial backing. Also, as the Commission points out, "high priority must be given adult literacy and dropout prevention programs."

School dropout cost to Texas at $17.12 billion

Integrating Training Systems. Nearly three out of four jobs by the Year 2000 are projected to require training beyond high school. Add to this the fact that small businesses, which have limited resources to train their workers, will generate the majority of new jobs, and it becomes imperative that Texas have a superior system of vocational and technical training. "This will require better coordination between training organizations and the private sector to match skill development with labor market needs," says the Commission.

Currently, 950 school districts, 49 community college districts, the Texas State Technical Institute System, and Lamar University offer technical-vocational training administered through the State Board of Education and Texas Higher Education Coordinating Board. Nearly one million students are served annually at a cost of $540 million in state/federal dollars, with considerably more local dollars invested.

In January 1987, these two Boards jointly adopted a 5-year Master Plan for Vocational Education in Texas that will, when fully implemented: revamp and modernize the entire secondary vocational curriculum, emphasizing exploratory, cluster, and technology programs, as well as "2+2" programs (linking grades 11-12 and 13-14); and, place postsecondary institutions at the forefront in specialized training, industrial expansion, retraining, upgrading worker skills, and small business expansion.

To achieve coordination between training organizations and the private sector, the Master Plan calls for Texas to be divided into regions to facilitate joint planning between public secondary and postsecondary schools AND the Job Training Partnership Act, proprietary schools, employers, and other agencies with a vested interest and involvement in the delivery of skill training. The goal is to reach maximum coordination of services and resources, and a minimum duplication of programs and efforts.

The successful implementation of the Master Plan, in achieving a responsive and integrated system of technical-vocational training as envisioned by the Texas Strategic Economic Policy Commission and mirrored by the Governor's Task Force on Vocational Education, will require strong commitment by the Legislature. This commitment must come through modifications to current statute, to facilitate multi-agency coordination and involvement in skill training, and through recognition and support for adequate funding levels to implement the Master Plan.

Recommendations

A. LITERACY

*1. **Multi-Media Campaign.** The Governor and Legislature embark on a "multi-media" statewide initiative that will heighten Texas' public awareness of the importance of work place literacy and staying in school, of literacy and dropout prevention programs, and of the human and economic aspects of literacy. Establish a media alliance (television, radio, newspapers), with an initial 52-week local commitment, to donate and/or finance through private sector support, weekly prime air time and space that features public service messages from the Governor and other well-known Texans, mayors and local celebrities, civic and business leaders, and former dropouts. Have the media commit to ongoing news and human interest feature articles on the literacy and dropout prevention issues. Establish local hotlines where people can call for assistance.*

T/COVE Comments. Literacy is the underlying foundation to economic development. The power and the influence of the media, through a long-term structured campaign, can place in the public's consciousness the need to be literate, the importance of staying in school, and the human and economic benefits derived through a good education and training. Thousands of adult literacy and school dropout programs, public and private, are offered in communities throughout Texas. The media, on a fragmented basis, is devoting time to literacy, but until public consciousness is swayed, high levels of illiteracy and school dropouts will continue to pull Texas down.

*2. **Texas Literacy Council.** The Legislature continue the Texas Literacy Council, established and given a limited life span by SCR 48 in 1987, by amending Section 11.18(d), Texas Education Code, designating the Texas Literacy Council in an advisory role to the State Board of Education, Texas Higher Education Coordinating Board, and Texas Department of Commerce on needs, priorities, and standards for and of adult literacy programs, including*

coordination with other agencies, public and private, that have a vested interest in literacy. The Literacy Council's operation and staffing should be maintained independent of the three boards it is to advise, and should be funded from the adult education line item in Article III of the appropriations bill, not to exceed $150,000 per year. Require the Literacy Council to submit a biennial progress report to the Governor and Legislature on the status of adult literacy needs, programs, adults served, and expenditures in Texas.

T/COVE Comments. The Texas Literacy Council was established to coordinate the development and maintenance of literacy instruction for adults. The Central Education Agency, per provisions of Section 11.18, Texas Education Code, *is and should remain the lead agency for adult education in Texas; however, other agencies and boards have a vested interest in literacy.* Under Section 11.18(d), the State Board of Education may establish or designate an adult education advisory committee. In 1974, the Board chose to designate T/COVE (known as Advisory Council for Technical-Vocational Education under state law). T/COVE receives no resources nor has adequate staff or membership to carry out the adult education advisory function in addition to fulfilling its mandated responsibilities for vocational education. Over the years, T/COVE has donated about 10 percent of its time to adult education issues, far from what is needed to do justice to adult education. The Texas Literacy Council can fill the need for a state level adult literacy committee. *The Legislature should also consider updating the entire Section 11, to reflect current concerns and directives for adult literacy and dropout prevention.*

*3. **Adult Education Funds.** The Legislature increase the line item appropriation for "adult/adult vocational education" in the appropriations bill by $7.5 million per year; thereby, doubling the State's annual investment in adult literacy programs.*

T/COVE Comments. State funding for adult education programs administered through the Central Education Agency and offered through public school districts, education service centers, community colleges, and colleges/universities has remained at or near $7.5 million per year for the past four bienniums. In FY '88, 216,931 individuals participated in adult education at a cost of $13.4 million (includes federal funds), with an average cost per participant of $62. Over 26,000 individuals passed the GED test or obtained a high school diploma. Another 47,000 individuals, functioning below the 8th grade level upon entry into the program, were brought up to that level. Over 130,000 individuals participated in adult education to improve their basic skills for personal satisfaction and increased self-confidence. Public schools and colleges established linkages with 215 libraries, 397 churches, 423 businesses, 8 labor unions, 282 voluntary and community organizations, 57 vocational schools, 62 health agencies, and 293 other public and private agencies in providing adult education in FY '88. The current adult education delivery system is doing an excellent job with limited resources; however, providing services to just over 200,000 adults per year will not crack the literacy problem. Substantial increases in adult education funds are both warranted and vitally needed.

B. TRAINING

*1. **Integrated System.** The Legislature expand Section 21, Texas Education Code, to reflect that the Master Plan for Vocational Education under Section 21.113 shall provide for the development of an integrated delivery system, based on clearly defined regional boundaries, that will be designed to meet local, regional, and statewide needs for vocational and technical training; will facilitate planning and coordination between secondary and postsecondary institutions, the Job Training Partnership Act, employers, and other agencies involved with or impacted by vocational and technical training; will determine priorities for vocational education and JTPA programs in each region; and, will provide for the delivery of vocational and technical training and services in a systematic, and to the extent possible, nonduplicative manner.*

T/COVE Comments. The Governor's Task Force on Vocational Education, in its report issued in January 1988, called for an integrated delivery system to facilitate the planning, development, and delivery of vocational education in Texas. The Texas Strategic Economic Policy Commission also feels a "responsive, integrated system for technical and vocational training" is imperative to the economic development of Texas.

*2. **Joint Advisory Committee.** The Legislature amend Section 61.077, Texas Education Code, expanding the membership of the Joint Advisory Committee to include board level representatives from the Texas Department of Commerce, Texas Department of Human Services, and Texas Employment Commission, and representatives from business, industry, and labor. Expand the responsibilities of the Joint Advisory Committee to include: (a) development of the Master Plan for Vocational Education, utilizing staff from each agency represented, with the Plan submitted to the State Board of Education,*

Texas Higher Education Coordinating Board, and Texas Department of Commerce for adoption, with any modifications subject to approval of the three Boards; and (b) development of an integrated vocational and technical delivery system, including regional boundaries, regional planning committee composition, and guidelines for the operation of an integrated delivery system, subject to the approval of the Boards listed in (a) above. Amend Section 21.113 to reflect the Joint Advisory Committee as developing the Master Plan for Vocational Education.

T/COVE Comments. To achieve a truly integrated delivery system for vocational education would require multi-agency involvement in the development and ongoing operation of such a system. The Joint Advisory Committee, with expanded membership and responsibilities, would be the ideal mechanism to achieve this goal for Texas.

3. ***Vocational Weight.*** *The Legislature maintain a "blanket weight" for secondary vocational education in Section 16.155(a), Texas Education Code; however, increase the weight to 1.65 to more nearly reflect the cost of vocational education as revealed in a 1986 State Board of Education Accountable Costs Advisory Committee study. Amend Section 16.155(b) to reflect the State Board of Education conducting a biennial study of the cost of providing vocational education, but recommending a blanket weight for Section 16.155(a) rather than differential weights. Add a provision to Section 16.155 permitting the State Board to utilize up to two percent of the funds appropriated under Section 16.155(a) to provide incentives to school districts to implement programs that address Master Plan directives.*

T/COVE Comments. In a1988 study of the 1.45 weight's impact on vocational education, T/COVE found that 68 percent of a stratified random sample of *school districts support the continuance of a single weight for vocational education in state law rather than differential weights, but feel the weight should be increased.* School districts receive a vocational allotment in a "lump sum" based on their total FTEs generated in vocational education. Dollars are then assigned locally, based on cost differentials among programs. Nearly 83 percent of districts greater than 1,600 in ADA, who responded to the study, support a single weight in state law. Of districts with less than 1,600 ADA, 57% of the respondents expressed support. Local programs, beginning September 1, 1989, must address State Board identified priorities to receive state dollars.

4. ***Postsecondary Funding.*** *The Legislature provide full formula funding for postsecondary occupational education, and provide incentive funding for the targeted goals of postsecondary occupational education, as outlined in the Master Plan for Vocational Education (e.g., services to dislocated workers, tying economic development to communities and regions, the recruitment of minority students, and developing a flexible/adaptable delivery system for adults).*

T/COVE Comments. The majority of new jobs between now and the Year 2000 will require postsecondary training. Community college occupational education programs are receiving significantly fewer dollars than four years ago. If Texas is to make a strong commitment to achieving a diverse and expanding economy, then community college occupational programs must receive a significant increase in funding.

5. ***Annexation.*** *The Legislature simplify the process for community/junior college annexation; thereby enabling these colleges to respond in a timely and adequate manner to increased demands for training and retraining, upgrading worker skills, and serving the training needs of business expansion.*

T/COVE Comments. Many areas of Texas are underserved by community colleges. It would be a lot easier and more cost efficient in the long run to Texas to ease the procedures for community colleges to annex adjoining territory than it would be to create new community college districts.

6. ***Small Business Development.*** *The Legislature provide state funds, to be administered through an appropriate agency, to match the level of federal funding provided to the network of small business development centers in Texas.*

T/COVE Comments. Small businesses provide nearly 80 percent of Texas jobs. However, most entrepreneurs do not have the experience or the business knowledge to successfully operate and expand a company. Small business development centers have significantly increased the number of businesses surviving the early development years as well as the total number of business start-ups. Texas is one of few states that does not invest state funds in support of small business development.

7. ***Apprenticeship Training.*** *The Legislature maintain at least the current levels of state dollar support for apprenticeship programs administered by the State Board of Education and Texas Higher Education Coordinating Board.*

T/COVE Comments. Apprenticeship training is a viable and proven approach to providing trained workers in targeted skilled occupations that address the state's economic needs.

Texas Vocational Education Enrollments and Expenditures

Texas public vocational education programs served 955,113 students in 1987-88.

The state's 950 school districts offering vocational education enrolled 561,475 students. Home economics comprised 41.7 percent of the secondary enrollments in 1987-88, followed by Exploratory Industrial Arts (11.8%); Trade/Industrial (11.7%); Agriculture (10.6%); Occupational Orientation (9.5%); Business & Office (6.9%); Marketing (5.3%); Technical (1.3%); and Allied Health (1.2%).

Enrollments in postsecondary associate degree and certificate occupational programs enrolled 224,806 students in 1987-88. Short-term adult and apprenticeship programs served 168,832, for a total postsecondary enrollment of 393,638.

Postsecondary occupational programs generated over 70 million contact hours in 1987-88. Office occupations generated 24.6% of the contact hours, followed by Industrial Education (22.8%); Health Occupations (16.0%); Technical Education (11.6%); Adult Supplemental (6.9%); Cooperative Work Experience (5.8%); Distribution & Marketing (4.2%); Home Economics (2.0%); Agriculture (1.2%); Adult Apprenticeship (.9%); and Other Related Training (4.0%).

Occupational education at the postsecondary level is provided through the state's 49 community college districts, the Texas State Technical Institute System, and Lamar University.

Figure 1
Vocational Education Enrollments

Level	1986-87	1987-88	% Change
Secondary (7-12)	533,081	561,475	+5.3
Postsecondary	449,563	393,638	-12.4
Total	982,644	955,113	-2.8

Sources: Texas Education Agency, Texas Higher Education Coordinating Board.

Vocational Expenditures. Vocational education expenditures topped $539 million in 1987-88 for secondary and postsecondary programs.

Expenditure of state funds for vocational education dropped 2 percent overall. Federal expenditures increased by 58 percent.

Special Populations. Of the 955,113 individuals served by vocational education at the secondary and postsecondary levels in 1987-88, nearly 30 percent were classified as either educationally and/or economically disadvantaged.

Disabled students served by vocational education in 1987-88 comprised right at four percent of the total secondary and postsecondary vocational enrollments (See table on next page).

Figure 2
Vocational Education Expenditures

Level/Source	1986-87	1987-88	% Change
Secondary			
State	$246,573,891	$248,073,959	+.6
Federal	23,081,153	41,569,386	+80.1
Sub-Total	$269,655,044	$289,643,345	+7.4
Postsecondary			
State	$239,942,446	$228,725,136	-4.7
Federal	16,453,787	21,182,657	+28.7
Sub-Total	$256,396,233	$249,907,193	-2.5
Both Levels			
State	$486,516,337	$476,799,095	-2.0
Federal	39,534,940	62,759,043	+58.7
Total	$526,051,277	$539,558,138	+2.6

Sources: Texas Education Agency, Texas Higher Education Coordinating Board.

Summary of Disabled Students
Receiving Texas Public Vocational Training, 1986-88

	Year	OH	OHI	HI	VH	D-B	MR	ED	LD	SH	MH	AU	P	Total
Regular Vocational Education (Mainstream)	1986-87	75	255	97	53	0	787	843	9,807	249	32	1	195	12,394
	1987-88	100	306	134	51	1	869	970	[illegible]	62	101	3	500	14,346
	Difference													+15.7%
Coordinated Vocational Academic Education	1986-87	19	78	26	11	0	310	417	3,136	13	8	2	15	4,035
	1987-88	19	96	28	10	0	302	452	3,244	44	3	2	28	4,228
	Difference													+4.8%
Vocational Education for Handicapped (Self-Contained)	1986-87	66	117	62	14	1	1,606	609	2,765	8	19	11	5	5,283
	1987-88	61	120	63	12	2	1,624	559	2,830	5	38	19	6	5,339
	Difference													+1.1%
*Vocational Adjustment Class	1986-87	53	169	56	27	6	1,284	893	5,297	27	113	4	7	7,936
	1987-88	50	164	56	19	1	1,272	978	5,285	29	124	4	7	7,989
	Difference													+0.7%
*Sheltered Workshop	1986-87	7	8	3	3	0	618	31	49	1	30	3	0	753
	1987-88	16	13	4	5	1	704	40	65	0	168	9	0	1,025
	Difference													+36.1%
*Transition Class	1986-87	1	1	0	0	0	2	12	82	58	0	0	0	156
	1987-88	0	6	15	0	0	12	16	152	51	3	0	0	255
	Difference													+63.5%
Totals	1986-87	221	628	244	108	7	4,607	2,805	21,136	356	202	21	222	30,557
	1987-88	246	705	300	97	5	4,783	3,015	22,825	191	437	37	541	33,182
	Difference													+8.6%

This table represents vocational training at the junior and senior high levels. Vocational instruction for disabled persons is offered in industrial, home economics, office, health, agriculture, marketing/distribution, and technical occupations. Emphasis is placed on putting disabled persons in the least restrictive environment. Not included in the above table are disabled students served through consumer homemaking, industrial arts, and occupational investigation programs. The TEA does not disaggregate their disabling conditions. The total disabled enrollment in these programs in 1987-88 was 14,527.

Community colleges and technical institutes served 9,124 handicapped students in 1986-87 and 11,831 in 1987-88 in occupational programs. Their disabilities were not disaggregated. The vast majority of postsecondary disabled students are served in the "mainstream" rather than self-contained classes.

Legend:

OH = Orthopedically Handicapped
OHI = Other Health Impaired
HI = Hearing Impaired
VH = Visually Handicapped
D-B = Deaf-Blind
MR = Mentally Retarded
ED = Emotionally Disturbed
LD = Learning Disabled
SH = Speech Handicapped
MH = Multi-Handicapped
AU = Autistic
P = Pregnant

*Vocational training, offered in these instructional arrangements, are funded and administered through special education.

Note: The total number of disabled students receiving job skills guidance and training in 1987-88 through public secondary and postsecondary administered vocational and special education programs was 59,540. Handicapping conditions on 33,182 are reflected in this table.

Table Sources: Texas Education Agency; Texas Higher Education Coordinating Board.

The Economic Impact of Vocational Education in Texas

Introduction

Texas high school vocational education programs, with exceptions, are having a positive and significant impact on higher worker wages, lower unemployment, increased sales tax receipts, and reduced welfare costs, according to a Texas A&M University study.

The year-long study, completed in August 1988 by economists M. L. Greenhut and Steve Pejovich at the request of the Texas Council on Vocational Education, revealed that the costs to the taxpayer to provide vocational education appear to be paid back within four years by program graduates through sales tax gains derived by higher wages and reduced welfare costs resulting from lower unemployment.

The Texas Council, comprised of 13 Governor appointed lay citizens who advise the State Board of Education and Texas Higher Education Coordinating Board on public policy, requested the study to measure the economic impact of vocational education, says William E. Zinsmeyer, a San Antonio businessman who chairs the Council.

The Council had also requested an analysis of community college occupational programs; however, Texas A&M University had insufficient data and resources available to complete a comprehensive analysis within the specified time frame; nevertheless, a preliminary estimate of the costs/benefits of postsecondary programs is included at the end of this summary, which appear to be more favorable than the high school results.

Annually, vocational education programs offered through public school districts, community colleges, technical institutes, and universities provide instruction to nearly one million students at a cost exceeding one-half billion dollars. Heavily criticized in 1984 as bordering on obsolescence by Dallas billionaire H. Ross Perot's Select Committee on Public Education, Vocational Education is undergoing sweeping reforms aimed at revamping the entire secondary curriculum, creating high school/community college linkages, and tying the approval and funding of programs to priority occupations. The new reforms take effect September 1, 1989.

Focus on Earnings, Unemployment, Costs/Benefits

The Texas A&M Center for Free Enterprise, directed by Pejovich, arranged for the study which compared the average hourly earnings and unemployment rates of vocational education program completers—in the labor force in 1986 one-year after training—with equivalent groups of individuals who received no vocational training at the high school level. The study attempted to also look at the costs of providing vocational programs versus the actual benefits derived by society.

Economist Greenhut, with graduate research assistant Mary Carter, studied 25 vocational programs at the high school level, within a stratified random sample of 117 of the state's more than 1,000 school districts. The programs studied represent "occupationally specific training" with the largest enrollments.

The equivalent group used in the study was high school graduates in the 16-19 age bracket.

Wage Analysis

In his report, Greenhut states, "there is strong evidence that certain vocational education programs offered significantly higher wage prospects for their graduates and that only a few programs did not." (See Figure 1 on next page.)

Greenhut isolated males and females for wage comparisons. Both male and female vocational completers faired significantly better in the vast majority of programs than their equivalent counterparts. The study shows that females, who took vocational education, earned higher wages in many occupations than males who did not receive vocational training; however, females, with or without vocational education, still lagged behind vocational male completers in terms of wages in most programs.

Figure 1
1986 Average Hourly Wage Differences*
Vocational Completers vs. Equivalent Group
(One Year After Completing High School)

The following programs generated significantly higher hourly wage differences per vocational completer than an equivalent group of graduates who did not receive high school vocational training but were working in similar occupations.

	Program*	Hourly Difference*
1.	Auto Mechanics	$2.05
2.	Health Occupations	1.96
3.	Cosmetology	1.87
4.	Production Agriculture	1.86
5.	General Agriculture Mechanics	1.52
6.	Child Care Guidance	1.25
7.	Marketing (Co-op)	1.19
8.	Data Processing	0.84
9.	Industrial (Co-op)	0.47
10.	Word Processing	0.36
11.	Office Education (Co-op)	0.30

The following vocational programs generated wage differences at or below the equivalent group.

	Program*	Hourly Difference*
1.	Office Education (PEL)	$0.16
2.	CVAE (Co-op)	0.04
3.	General Construction (CVAE)	-0.52
4.	Building Trades	-0.70
5.	Drafting	-0.84

"The hourly wages for vocational completers were actual. The "equivalent group" wages used by M. L. Greenhut in determining hourly differences between vocational completers and graduates who did not take vocational education in high school were based on: the average U.S. wage for high school graduates in the 16-19 age bracket, adjusted to reflect the ratio of males/females who pursued vocational training, multiplied by the ratio of the average U.S. industry wide occupational income to the general U.S. average hourly wage for all occupations, adjusted for the ratio of Texas to national earnings. Greenhut notes in his report that the U.S. industry wide averages in construction and office/clerical occupations do not reflect a depressed Texas economy; therefore, the equivalent group wages for construction and office occupations used in determining hourly wage difference comparisons with vocational completers may be too high. On average across all 16 programs, vocational completers earned $.74 more per hour than the equivalent group.

The study involved 25 vocational programs. Greenhut did not have sufficient data to make statistically valid comparisons for nine programs: Auto Body Repair; Welding; Voc. Electronics; Home Economics Co-op; Voc. Education for the Handicapped in Food Production; and CVAE programs in General Mechanical Repair, Office Duplication Practices, Home Economics Production/Management, and Food Production.

Definitions: Co-op is an instructional arrangement where students receive training on-the-job; PEL means pre-employment laboratory in a school setting that simulates actual work conditions; CVAE stands for Coordinated Vocational Academic Education which is designed to serve "at risk" students.

Note: Wage differences based on vocational completers employed in a field related to training.

Unemployment Analysis

Greenhut had sufficient data to conduct an unemployment analysis for 22 of the 25 programs involved in the study. In 18 of the programs, he states that vocational completers had statistically significantly lower unemployment rates than those projected for the equivalent group (See Figure 2 on next page).

For the 22 programs studied in the 10% sample of school districts, there were 5,543 vocational completers in the labor force one year after graduation, with 607 (10.9%) being unemployed. Greenhut's report reveals that if vocational completers had experienced the same unemployment rates as the equivalent group, there would have been 1,185 vocational completers unemployed. Lower unemployment rates among vocational completers resulted in 578 fewer individuals being out of work.

Voc Ed Benefits/Cost Analysis

The difference in annual wages between vocational completers employed in fields related to training and the equivalent group, one year after high school, averaged $1,724 for the programs in which a wage analysis was conducted. These same vocational completers averaged overall sales tax payments of $212, which was $46 more per completer than the equivalent group.

The additional individuals working as a result of lower unemployment rates among vocational completers versus the equivalent group, paid an average of $22 more in sales tax than they would have had they not been employed, and saved the taxpayers an average of nearly $2,100 each in unemployment payments.

Despite the positive gains in wages, sales tax, and unemployment savings by vocational education completers compared to the equivalent group, Greenhut points out in his study that the cost of providing vocational education exceeds the benefits, at least after the first year. His analysis of 20 vocational programs in the sample of school districts revealed a cost of $4.1 million above what it costs to provide academics, whereas the benefits in sales tax gains and unemployment savings for vocational completers in these programs totaled $1.3 million one year out of high school.

Greenhut points out, however, that *"if the results obtained in the study hold for only 4 years, the programs more than pay for themselves."*

Figure 2
1986 Unemployment Rates
Vocational Completers vs. Equivalent Group
(One Year After Completing High School)

	Program	Vocational Completers*	Equivalent Group
1.	Production Agriculture	4.02%	34.75%
2.	Industrial (Co-op)	5.83	34.49
3.	CVAE General Mechanical Repair	7.14	13.43
4.	Data Processing	7.79	16.32
5.	Marketing (Co-op)	8.15	20.07
6.	Health Occupations	8.49	16.32
7.	Word Processing	9.92	16.32
8.	Welding	11.11	34.49
9.	Cosmetology	11.42	16.32
10.	Home Economics (Co-op)	11.62	16.32
11.	CVAE (Co-op)	12.09	23.69
12.	Building Trades	12.27	34.48
13.	Office Education (Co-op)	12.44	16.32
14.	Child Care Guidance	14.35	16.32
15.	Auto Mechanics	14.40	16.32
16.	Office Education (PEL)	15.05	16.32
17.	Drafting	19.64	34.49
18.	General Agriculture Mechanics	23.53	34.75
19.	CVAE General Construction Trades	24.19	34.49
20.	Vocational Electronics	15.73	16.32
21.	Auto Body Repair	16.67	16.32
22.	CVAE Food Production/Management	34.78	20.27

*Based on total vocational completers in labor force (i.e., employed field related to training, employed jobs unrelated to training, and those seeking work). On average, the unemployment rates experienced by vocational completers were 8.5% lower than the rates for members of the equivalent group.

Insufficient data available for valid comparisons in three programs: Vocational Education for the Handicapped Food Production, and CVAE Programs in Office Duplication Practices and Home Economics Production/Management.

Community College Costs/Benefits

Greenhut had hoped to analyze the wage differences of community college occupational program completers with that of a control group who had not received occupational training through community colleges. The analysis was to involve 20 occupational programs within the state's 49 community college districts, involving an equivalent group of postsecondary graduates in the 25-34 age bracket. The average age of a community college graduate is 28. Wage data was not available for postsecondary graduates working in 1986. This was the year the administration of postsecondary occupational education was transferred from the Texas Education Agency to the Texas Higher Education Coordinating Board, and the wage data was not gathered.

The Texas A&M economist did have unemployment and cost data for the occupational programs to be studied. To approximate benefits to society generated by postsecondary programs, Greenhut translated the postsecondary unemployment rate differentials (between occupational completers and a control group) into sales tax revenues and welfare cost savings utilizing the wage rates applicable to high school graduates, recognizing that postsecondary graduates likely have higher wage rates and in turn generate greater benefits than those shown in Figure 4. A comparison of the average contact hour cost per completer versus the average benefit derived per completer is shown in Figure 4.

Greenhut was able to approximate the costs versus benefits for 12 of the 20 postsecondary occupational programs identified for the study. "For 10 of the programs analyzed, the benefits per completer were significantly greater than the costs," he states. *The benefits exceed the costs within one year after graduation.*

Future Needs

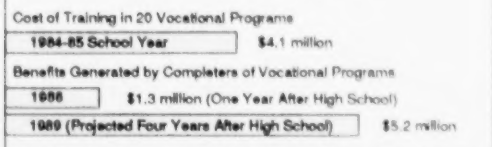
Greenhut's study analyzed the benefits generated by vocational education program graduates only one year after training. He notes the contention that some people believe the benefits of vocational education are short-term and that the general population will "catch up" after a few years. He recommends a long-term survey to test the validity of this contention.

He also believes that research should be focused in determining vocational education's effects on: non-monetary benefits (e.g., impact on career and education decisions; leadership skills); benefits derived by minority populations and handicapped students; reducing school dropouts; increasing self-esteem (e.g., derived in accomplishing real-world tasks; and reducing crime rates). He notes in his report that he is studying the impact of vocational education on preventing school dropouts in the Bryan Independent School District.

In conducting the study, Greenhut relied heavily on student follow-up and cost data (e.g., wages and unemployment) gathered from school districts and community colleges by the Texas Education Agency and

Texas Higher Education Coordinating Board. He notes that the follow-up process should be expanded and improved upon (e.g., race and special needs of completers) by these two agencies. Also, Greenhut constructed the "equivalent groups" based on U.S. and Texas demographic information. Although this study's results are statistically valid, he feels future studies should encompass actual control group samples of high school and community college graduates who had not received vocational training while in school.

Figure 3
Cost Versus Benefits of
High School Vocational Education
(Analysis of 20 Programs)


Cost of Training in 20 Vocational Programs
1984-85 School Year
$4.1 million
Benefits Generated by Completers of Vocational Programs
1988
$1.3 million (One Year After High School)
1989 (Projected Four Years After High School)
$5.2 million

The $4.1 million represents the additional cost to the taxpayer, above that required for academics of providing training in 20 vocational programs analyzed by economist M. L. Greenhut. A stratified sample of 117 school districts (10% of the state's total) were involved in the analysis, with 59 districts providing data. The cost is for the 1984-85 school year.

The $1.3 million actual benefits one year after high school represent the additional sales tax payments generated by vocational program completers, due to higher wages than the equivalent group, and the savings in unemployment payments due to lower unemployment rates among vocational completers. The $5.2 million represents benefits derived after four years if the benefits after one year hold constant. In other words, the payback (costs versus benefits) would occur within four years or less.

Both the costs and benefits relate to vocational program completers who were employed in jobs related to training. Also included in figuring costs/benefits were the extra individuals who were employed as a direct result of lower unemployment rates among vocational completers versus the equivalent control group. The average cost per completer was $1,250, while the average benefits per completer one year out of high school was $400.

Greenhut had insufficient data for valid comparisons in five programs: Auto Body Repair; Vocational Education for the Handicapped in Food Production; and CVAE Programs in Office Duplication Practices, Home Economics Production/Management, and Food Production. Programs listed in Figure 2 were included in the analysis.

Copies of Report

A report published by Dr. Greenhut is available from The Center for Education and Research in Free Enterprise, Texas A&M University, College Station, Texas, 77843-4231 (409/845-7722).

Figure 4
Comparison of Costs Versus Benefits
Postsecondary Occupational Education
(12 Occupational Programs)

	Program	Average Cost Per Completer*	Average Benefit Per Completer**
1.	Auto Mechanics	$19.59	$130.49
2.	Nursing	2.89	296.35
3.	Respiratory Therapy Technology	143.62	279.37
4.	Emergency Medical Technician	116.34	339.83
5.	Radiologic Technology	38.47	146.06
6.	Drafting & Design Technology	12.34	150.16
7.	Instrumentation Technology	82.97	415.46
8.	Air Conditioning & Heating	27.09	139.49
9.	Law Enforcement	10.57	85.16
10.	Horticulture	112.67	333.88
11.	Food Service	9.87	1.91
12.	Dental Assistant	97.20	55.54

*In determining the average cost per completer, Greenhut utilized the Coordinating Board's "Summary of Statewide Costs Per Contact Hour for Vocational-Technical Programs, Fiscal Year 1985-86." He had insufficient data and insignificant negative results for eight of the 20 programs studied: Printing & Graphic Arts, Electronics Technology, Surveying Technology, Mid-Management, Child Care/Child Development, Cosmetology, Accounting, and General Specialized Secretarial.

**Savings in welfare costs due to lower unemployment among occupational program completers versus equivalent group, and increased sales tax payments generated by higher wages than equivalent group.

Symposium Targets Workforce Through Regional Planning

Dr. Lauro Cavazos, U.S. Secretary of Education and keynote speaker at a public policy symposium held at the LBJ School of Public Affairs, stressed the provision of vocational and technical programs that offer an academic education in an applied setting. Such programs, he stated, would supply secondary and post-secondary students with the basic tools for life-long learning.

The symposium, held November 16, 1988, and entitled "Developing A Skilled And Educated Workforce Through Regional Planning," focused on strategies which would involve educators and the business community in training the Texas workforce. The symposium was jointly sponsored by the Texas Education Agency, Texas Higher Education Coordinating Board, Texas Department of Commerce, Texas Council on Vocational Education, and the University of Texas LBJ School of Public Affairs.

Industry must communicate to secondary and post-secondary schools the skills that are needed to function in the workplace; and through collaboration and coordination, education must change to reflect these necessary skills, added Cavazos. In the future, jobs on average will demand more education and training. Management in U.S. business is realizing that workers must have input into the production of goods and services for industries to stay competitive. According to Cavazos, workers must also have good communication skills - second only to job knowledge in needed skills.

Yet, the gap between the intellectual skills needed in the workplace and the available skills of workers continues to widen. On achievement tests, U.S. students rank near the bottom of all industrial countries. And, Blacks and Hispanics rank behind Anglos in this country in all subject areas. Disadvantaged students have been bypassed by sweeping reforms, noted Cavazos. By the year 2000, the majority of students in public schools in Texas will be Blacks and Hispanics. If the state is to educate a productive workforce, it must focus attention on the special needs of these populations - namely, dropout and illiteracy rates.

Cavazos commented that states must attract more minority teachers, who can serve as role models for students. He urged schools to provide at-risk students with options for the future. Apprenticeship and transition programs are needed to keep students in school. Two-year associate degrees, including vocational and technical programs, after high school can secure the training people need for the workplace. According to Cavazos, 60 percent of the workforce could be adequately trained for jobs by vocational and technical programs.

As Secretary of Education, Cavazos pledged to address the minority and Anglo dropout problem, which he viewed as a loss of human potential. This loss hinders the U.S. competitive position in the international marketplace and represents a defeat to humankind. To solve the U.S. deficit in education, Cavazos will spend time raising awareness of the problem, convincing students that someone cares about them, and raising the expectations in students themselves.

After Cavazos' speech, the symposium continued with panel discussions on what should be done in Texas to implement regional planning. Addressing the concept of regional planning, Nancy Speck, a member of the Texas Strategic Economic Policy Commission, noted some of the Commission's recommendations for priority actions in the upcoming legislative session. These included attention on the adult literacy and dropout problem, and more coordination between public and private sectors encompassing state agencies and training institutions, and between voc-tech programs and the workforce. The Commission urged more involvement by all facets of regional planning and the establishment of more formal regional systems. Additionally, it recommended aggressive implementation of the Master Plan for Vocational Education.

Larry Jenkins, Chairperson for the Governor's Task Force on Vocational Education, echoed this last recommendation. He stated that the Master Plan was well-conceived, but educators needed help implementing it. Help can be obtained through integrated planning at the state, regional and local levels.

The Master Plan demands that a bridge be developed between vocational education and academic education, commented Maria Elena A. Flood, Chairperson for the Finance and Programs Committee of the State Board of Education. She added that the Master Plan is a crucial document,

which can be supported by regional planning. Regional planning proposes to provide economic development, link training with the skills that are needed in the workplace, reduce unnecessary duplication of training from different entities in a region, and increase efficiency of training.

In accordance with the Master Plan for Vocational Education, three broad-based regional planning projects began their planning activities in December 1987. The projects, sponsored by the Texas Department of Commerce, the Texas Higher Education Coordinating Board, and the Texas Education Agency and operating through June 30, 1989, are being conducted in three separate labor market areas of the state. The location of the projects include the Upper Rio Grande area, the San Antonio area, and the North East Texas area. A fourth project, which did not receive funding from the three state agencies, is being conducted by Interlink, a group of public and private sector entities, for the Dallas-Fort Worth metropolitan area.

As stated in a status report on the projects, the sponsoring agencies learned that "Regional planning committees must be representative of a wide spectrum of public and private interests, must be given adequate time to learn their roles and to be perceived as legitimate within their regions, and must be given proper staff support to assume leadership in the planning process." They also confirmed that occupational education and training programs should be based upon current and projected job openings in the labor market, and that training must provide workers with necessary skills required for performance in those occupations.

According to Crandall Young, Deputy Executive Director of Region XIX Education Service Center in El Paso and affiliate of the Upper Rio Grande Area Project, schools are very supportive of regional planning. But, to make regional planning a viable solution to economic development, it must address three critical issues: (1) *involvement* - regional corporations must become involved in the projects; (2) *authorization* - the projects must be authorized by the state and set up to operate; and, (3) *financing* -the money for developing and implementing regional planning must be appropriated, in an atmosphere of competing interests and budgetary restraints within the state.

To request additional copies, please write or phone:

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